TIMSS-R 1999 Preliminary Analysis

The Third International Math and Science Study for 1999 (TIMSS 1999) was completed by 1,844 (909 girls, 935 boys) Idaho students. Participants were all in the 8th grade with an average age of 14.2 years. Thirty-eight countries participated in this international study along with 13 states and 14 individual school districts or consortia. All test scores are reported on a scale of 0 to 800 points. The TIMSS 1999 also included in-depth surveys of the students, parents, teachers, and administrators.

This analysis summarizes information relevant to Idaho math and science students. The entire report is available online at http://www.timss.org.

Math

The mathematics portion of the TIMSS 1999 included five content areas, abbreviated as follows:

- Fractions and Number Sense (Fractions)
- Measurement (Measurement)
- Data Representation, Analysis, and Probability (Data Analysis)
- Geometry (Geometry)
- Algebra (Algebra)

The results of the TIMSS 1999 show that Idaho 8th grade students perform slightly above the international average of 487, and slightly below the United States (US) average in math. Idaho students' scores were similar to those of students in North Carolina (NC) and Maryland (MD), and Idaho demographics are similar to those of Oregon students. Throughout the math section of this analysis summary, comparisons to NC, MD, OR will be made. Additional comparisons to the US averages will also be included.

Performance

Idaho students performed about equally with students across the United States. About one-quarter of Idaho students are above the 75th percentile and 5% are above the 90th percentile. It should also be noted that only 12% of Idaho students fall below the 25th percentile.

Nationwide, all students appear to have problems in the areas of Measurement and Geometry. Idaho students are no exception, with their lowest scores in these two areas.

Overall Scores

Overall	**ID**	NC	MD	OR	US
	495	495	495	514	502

Overall Percentile Rankings

Percent of students scoring above the indicated percentiles:

Percentile	**ID**	NC	MD	OR	US
90th	**5%**	7%	8%	10%	9%
75th	**24%**	25%	27%	32%	28%
50th (Median)	**61%**	57%	57%	69%	61%
25th	**88%**	88%	87%	91%	88%

Average Scores by Math Content Area

Average scores by all students in the five content areas:

Content Area	**ID**	NC	MD	OR	US
Fractions	**505**	497	501	521	509
Measurement	**482**	472	482	500	482
Data Analysis	**501**	502	504	516	506
Geometry	**465**	475	466	486	473
Algebra	**500**	510	499	515	506

Gender

Please note that Idaho girls scored the same as boys on the TIMSS 1999 math test, suggesting that efforts in gender-equity in math and science may be having a positive effect. Also note that the international percentile rankings for girls and boys are very close to each other and to expected values.

Boys scored higher in the areas of Measurement and Geometry. However, girls scored higher than boys in Data Analysis and Algebra, and the same as boys on Fractions and Number Sense.

Average Scores by Gender

Average scores of male and female students:

Gender	**ID**	NC	MD	OR	US
Female	**495**	494	490	514	498
Male	**495**	497	499	514	505

Gender Percentile Rankings

Percent of students scoring above the indicated percentiles by gender:

Percentile	**ID**	NC	MD	OR	US

Gender	**F**	**M**	F	M	F	M	F	M	F	M
75th	**24%**	**26%**	24%	26%	22%	28%	24%	27%	23%	27%
50th (Median)	**49%**	**51%**	49%	51%	48%	52%	49%	51%	49%	51%

Average Scores by Math Content Area by Gender

Average scores by gender in each math content area:

Content	**ID**		NC		MD		OR		US	
Gender	**F**	**M**	F	M	F	M	F	M	F	M
Fractions	**505**	**506**	492	502	496	507	518	524	505	514
Measurement	**479**	**485**	471	473	477	487	497	503	475	489
Data Analysis	**503**	**499**	504	499	502	507	516	516	503	508
Geometry	**462**	**468**	473	478	462	471	485	487	469	477
Algebra	**504**	**496**	512	507	499	500	522	509	507	504

Language, Race/Ethnicity, and Economic Issues

An obvious problem area nationwide is low scores for LEP and minority students. Scores for Idaho LEP and Hispanic students mirror scores from other standardized and state measures such as ITBS/TAP and the science part of TIMSS 1999. Please note that while Idaho does not have a significant minority population of 8th grade students other than Hispanic, low scores for other racial and ethnic groups are seen nationwide. Data for other ethnic groups in Idaho and elsewhere did not include enough data points to conduct statistical analyses.

Percentages of students from low social-economic status families were reported. However, these percentages did not include a disaggregation of TIMSS 1999 scores.

Limited English Proficient (LEP)

Average scores and percent of students who speak English in their homes:

Level of	**ID**		NC		MD		OR		US	
English	**%**	**Score**	%	Score	%	Score	%	Score	%	Score
Always	**92**	**501**	96	798	91	497	92	520	90	509
Sometimes	**7**	**430**	3	471	8	493	7	456	9	456
Never	**1**	**–**	1	–	1	–	1	–	1	–

Race/Ethnicity

Average scores and percent of students by race/ethnicity:

	ID		NC		MD		OR		US	
Race/Ethnicity	**%**	**Score**	%	Score	%	Score	%	Score	%	Score
White	**83**	**506**	62	521	55	521	80	523	63	525
Black	**1**	**–**	31	447	30	438	1	–	15	444
Hispanic	**10**	**432**	3	474	4	487	8	452	12	457
Asian/Pacific	**2**	**–**	1	–	5	551	4	531	5	539
American Indian	**2**	**–**	1	–	1	–	3	482	1	–
Other	**2**	**–**	2	–	5	511	4	517	4	496

Free/Reduced Lunch

Percentage of students receiving free and reduced lunch:

Free/Reduced	**ID**	NC	MD	OR	US
	37%	44%	28%	33%	39%

Classrooms and the Curriculum

It appears instructional time follows a Yerkes-Dodson curve, with too much and too little instruction causing a negative effect on scores. However, the TIMSS 1999 data does not support this conclusion. There is not enough evidence available to determine if too much or too little instruction causes a lowering of scores, or if this is an artifact of an undetermined variable. The same may be said for class size, attendance, and interruptions. The TIMSS 1999 data does not include enough data to appropriately determine the causation of these unusual results.

On the other hand, there is evidence that appropriate use of calculators and computers will help students score higher. Note, however, that inappropriate, forced, or continuous use of computers and calculators has a detrimental effect, as does not using these tools at all.

Homework also seems to be an important tool for raising student scores. TIMSS 1999 did not include an indication of the amount of homework assigned. However, the students of teachers who emphasize the importance of homework tend to score higher than students whose teachers do not emphasize homework.

Math Instructional Time

Average score and percent of students by the average number of hours of mathematics taught per week:

	ID		NC		MD		OR		US	
Hours	**%**	**Score**	%	Score	%	Score	%	Score	%	Score
>5	**13**	**488**	48	493	17	474	9	545	16	490
3.5-5	**65**	**499**	37	498	60	489	64	519	56	501
2-3.5	**13**	**512**	7	492	10	504	19	483	17	528
<2	**10**	**454**	8	491	13	472	8	510	11	491

Class Size

Average score and percent of students by mathematics class size:

	ID		NC		MD		OR		US	
Class Size	**%**	**Score**	%	Score	%	Score	%	Score	%	Score
1-20	**43**	**481**	22	482	11	497	26	500	21	507
21-35	**52**	**503**	77	497	84	488	74	521	73	504
>35	**6**	**488**	1	–	5	419	0	–	6	488

Attendance

Average scores and percent of students whose school reports low, medium, and high attendance in math class (based on number of tardies, absences, and skips):

	ID		NC		MD		OR		US	
Attendance	**%**	**Score**	%	Score	%	Score	%	Score	%	Score
High	**14**	**498**	10	483	11	514	4	487	19	534
Medium	**78**	**499**	84	502	80	490	84	515	68	498
Low	**8**	**469**	6	452	10	452	12	504	13	470

Interruptions

Average score and percent of students by frequency of interruptions of math study (telephone calls, announcements, administrative visits, etc.)

	ID		NC		MD		OR		US	
Interruptions	**%**	**Score**	%	Score	%	Score	%	Score	%	Score
Never	**11**	**484**	7	474	12	494	11	491	10	494
Infrequent	**60**	**510**	60	513	60	513	59	532	59	522
Often	**18**	**475**	21	485	17	475	19	499	20	488
Frequent	**11**	**463**	12	448	11	465	11	486	11	455

Calculator Use

Average score and percent of students using calculators in mathematics classes:

Calculator	**ID**		NC		MD		OR		US	
Use	**%**	**Score**	%	Score	%	Score	%	Score	%	Score
Unrestricted	**23**	**510**	29	485	42	509	52	526	34	524
Restricted	**75**	**490**	70	496	58	468	48	502	66	493
Not Permitted	**2**	**–**	1	–	0	–	0	–	0	–

Computer Use

Average score and percent of students using computers in mathematics classes the indicated amount:

Computer	**ID**		NC		MD		OR		US	
Use	**%**	**Score**	%	Score	%	Score	%	Score	%	Score
Always	**7**	**434**	13	456	13	447	12	482	12	463
Occasionally	**17**	**507**	34	500	36	504	26	534	27	520
Never	**76**	**498**	53	503	51	507	62	515	61	506

Homework Emphasis

Average score and percent of students of teachers reporting low, medium, and high emphasis on math homework:

Amount of	**ID**		NC		MD		OR		US	
Homework	**%**	**Score**	%	Score	%	Score	%	Score	%	Score
High	**14**	**516**	21	534	14	524	21	558	25	528
Medium	**83**	**492**	75	486	85	491	76	506	75	495
Low	**3**	**476**	4	463	2	–	3	453	1	–

The Teachers

The TIMSS 1999 identifies two important factors among Idaho math teachers. First, there are few young teachers entering the teaching profession in mathematics and second, less than 2 out of three Idaho math teachers actually majored in mathematics or math education during their preservice education. The corollary to these two factors is that 25% of Idaho math teachers report medium or low confidence in their ability to teach 8th grade mathematics.

This should not be construed to be an indictment of Idaho's higher education programs in teacher education. Conversely, it has been reported in other studies that many of the math and science graduates of Idaho's post-secondary teacher education programs are recruited and hired out-of-state. The data reported in the TIMSS 1999 seem to support that conclusion, especially when compared to the other states and nationwide.

It should also be noted that Geometry, the area Idaho students scored lowest, is the area of professional development focused on the least during teacher inservice programs.

Age of Teachers

Percent of students taught by teachers in indicated age brackets:

Teacher Age	**ID**	NC	MD	OR	US
<30	**7%**	29%	24%	19%	11%
30-39	**28%**	23%	19%	16%	25%
40-49	**43%**	35%	32%	36%	37%
>50	**22%**	13%	26%	29%	27%

Teachers' Major Area of Study

Percent of students taught by teachers graduating in indicated major area of study. Teachers who responded that they majored in more than one area are reflected in all categories (state totals will equal more than 100%):

Major	**ID**	NC	MD	OR	US
Mathematics	**28%**	50%	40%	39%	41%
Math Ed	**34%**	50%	35%	39%	37%
Science	**17%**	26%	8%	21%	16%
Education	**68%**	61%	63%	66%	54%
Other	**43%**	31%	37%	49%	46%

Math Teacher Confidence

Average scores and percent of students taught by teachers indicating a specific level of confidence in math teaching ability:

	ID		NC		MD		OR		US	
Confidence	**%**	**Score**	%	Score	%	Score	%	Score	%	Score
High	**75**	**508**	88	497	92	489	78	516	87	505
Medium	**18**	**461**	11	479	8	444	18	506	11	489
Low	**7**	**447**	1	–	0	–	4	480	2	–

Professional Development Focus

Percent of students whose teachers report that professional development is focused on indicated math content areas (teachers report multiple content areas as applicable):

Content Area	**ID**	NC	MD	OR	US
Fractions	**40%**	53%	46%	42%	54%
Measurement	**34%**	53%	41%	41%	45%
Data Analysis	**33%**	53%	65%	46%	50%
Geometry	**24%**	53%	40%	38%	45%
Algebra	**37%**	56%	58%	45%	56%

The Students

There appears to be a direct positive correlation between educational resources and computer use in the home and student scores on the TIMSS 1999 math test, as reported in other studies. The TIMSS 1999 also confirms studies that show that study outside of class improves test scores with study time of more than one hour per day greatly improved test scores. Idaho students report studying for all subjects about 2 hours per day.

It is also interesting to note how students spend their daily out-of-class leisure hours. Reports from Idaho students parallels that of students in other states and nationwide. Of particular interest is the report that reading occupies less than 45 minutes per day, and that music lessons and practice did not make the list.

Home Resources

Average scores and percent of students with varying levels of educational resources (not including computers) at home:

	ID		NC		MD		OR		US	
Resources	**%**	**Score**	%	Score	%	Score	%	Score	%	Score
High	**21**	**532**	16	546	26	544	28	556	22	555
Medium	**74**	**492**	81	489	71	481	68	502	73	492
Low	**5**	**403**	4	422	3	415	3	421	4	427

Home Computers

Average scores and percent of students with computers in their homes:

	ID		NC		MD		OR		US	
Computers	**%**	**Score**	%	Score	%	Score	%	Score	%	Score
Yes	**82**	**505**	74	507	86	504	86	524	80	515
No	**18**	**452**	26	461	14	442	14	457	20	459

Out-of-school Study Time

Average scores for students studying the indicated time on a daily basis

	ID		NC		MD		OR		US	
Study Hours	**%**	**Score**	%	Score	%	Score	%	Score	%	Score
>3 hours	**17**	**490**	23	490	20	501	19	524	22	508
1-3 hours	**55**	**509**	57	510	60	506	55	526	56	517
<1 hour	**28**	**479**	19	469	20	466	25	491	23	477

Average Study Time

Average number of hours students spend studying per day by subject area:

Subject	**ID**	NC	MD	OR	US
Math	**0.7**	0.8	0.8	0.8	0.8
Science	**0.6**	0.6	0.6	0.5	0.6
All Others	**0.8**	0.9	0.9	0.9	0.9
Total Hours	**1.9**	2.1	2.0	2.0	2.1

Average Leisure Time

Average number of hours students spend per day by activity:

Activity	**ID**	NC	MD	OR	US
Television	**2.1**	2.9	3.0	2.0	2.5
Computer	**0.8**	0.9	1.1	0.8	0.9
Friends	**2.2**	2.5	2.8	2.3	2.4
Home Chores	**1.2**	1.3	1.1	1.1	1.1
Sports	**2.0**	1.9	2.0	2.0	1.9
Reading	**0.7**	0.6	0.6	0.7	0.6

Science

The science portion of the TIMSS 1999 included six content areas, abbreviated as follows:

- Earth Science (Earth)
- Life Science (Life)
- Physics (Physics)
- Chemistry (Chemistry)
- Environmental and Resource Issues (Environment)
- Scientific Inquire and the Nature of Science (Inquiry)

The results of the TIMSS 1999 show that Idaho 8th graders performed significantly above the international average of 488, and slightly higher than the United States (US) average. Idaho students' scores were similar to those of students in Missouri (MO) and Illinois (IL), and Idaho demographics are similar to those of Oregon students. Throughout the science section of this analysis summary, comparisons to MO, IL, and OR will be made. Additional comparisons to the US averages will also be included.

Please note that Pennsylvania (PN) did not comply with sample selection rules for TIMSS 1999. Because of this, comparisons to PN have been omitted, even though PN students' scores are similar to Idaho's.

Performance

Idaho students performed about equally with students across the United States. It is important to note that 50% of Idaho's students are above the 75 percentile, and that only 9% are below the 25 percentile.

Idaho's students tend to perform about equally across all of the science disciplines tested in TIMSS 1999.

Overall Scores

Overall	**ID**	MO	IL	OR	US
	526	523	521	536	515

Overall Percentile Rankings

Percent of students scoring above the indicated percentiles:

Percentile	**ID**	MO	IL	OR	US
90th	**13%**	14%	14%	19%	15%
75th	**37%**	36%	36%	43%	34%
50th (Median)	**70%**	67%	66%	73%	62%
25th	**91%**	89%	88%	91%	85%

Average Scores by Science Content Area

Average scores by all students in the six content areas:

Content Area	**ID**	MO	IL	OR	US
Earth	**513**	511	505	528	504
Life	**531**	525	525	541	520
Physics	**507**	506	506	513	498
Chemistry	**518**	513	508	527	508
Environment	**522**	514	513	520	509
Inquiry	**513**	515	532	525	522

Gender

Idaho girls scored slightly lower than boys on the TIMSS 1999 science test. This difference in scores mirrors the scores of students in other states and nationwide, and is reflected in lower percentile rankings for girls than boys. It is also evident in all content areas except Inquire, where girls score equal to or higher than boys in all geographic areas.

Average Scores by Gender

Average scores of male and female students:

Gender	**ID**	MO	IL	OR	US
Female	**515**	512	508	524	505
Male	**537**	534	533	549	524

Gender Percentile Rankings

Percent of students scoring above the indicated percentiles by gender:

Percentile	**ID**		MO		IL		OR		US	
Gender	**F**	**M**	F	M	F	M	F	M	F	M
75th	**19%**	**31%**	19%	31%	20%	30%	19%	31%	20%	46%
50th (Median)	**44%**	**56%**	44%	56%	46%	55%	44%	56%	30%	54%

Average Scores by Science Content Area by Gender

Average scores by gender in each science content area:

Content	**ID**		MO		IL		OR		US	
Gender	**F**	**M**	F	M	F	M	F	M	F	M
Earth	**500**	**526**	502	520	496	514	520	537	490	518
Science	**526**	**535**	519	531	518	532	536	545	518	522
Physics	**494**	**519**	493	519	492	519	498	529	488	509
Chemistry	**509**	**526**	504	522	494	522	513	540	495	520
Environment	**513**	**530**	505	524	503	523	511	528	500	519
Inquiry	**515**	**513**	516	514	534	531	527	523	521	523

Language, Race/Ethnicity, and Economic Issues

An obvious problem area nationwide is low scores for LEP and minority students. Scores for Idaho LEP and Hispanic students mirror scores from other standardized and state measures such as ITBS/TAP and the math part of TIMSS 1999. Please note that while Idaho does not have a significant minority population of 8th grade students other than Hispanic, low scores for other racial and ethnic groups are seen nationwide. Data for other ethnic groups in Idaho and elsewhere did not include enough data points to conduct statistical analyses.

Percentages of students from low social-economic status families were reported. However, these percentages did not include a disaggregation of TIMSS 1999 scores.

Limited English Proficient (LEP)

Average scores and percent of students who speak English in their homes:

Level of	**ID**		MO		IL		OR		US	
English	**%**	**Score**	%	Score	%	Score	%	Score	%	Score
Always	**92**	**534**	95	527	91	528	92	544	90	524
Sometimes	**7**	**444**	4	472	8	465	7	464	9	456
Never	**1**	**–**	1	–	1	–	1	–	1	–

Race/Ethnicity

Average scores and percent of students by race/ethnicity:

	ID		MO		IL		OR		US	
Race/Ethnicity	**%**	**Score**	%	Score	%	Score	%	Score	%	Score
White	**83**	**537**	78	543	65	550	80	549	63	547
Black	**1**	**–**	15	438	17	448	1	–	15	438
Hispanic	**10**	**451**	2	–	12	457	8	451	12	462
Asian/Pacific	**2**	**–**	1	–	4	539	4	530	5	527
American Indian	**2**	**–**	1	–	0	–	3	498	1	–
Other	**2**	**–**	3	475	2	–	4	548	4	502

Free/Reduced Lunch

Percentage of students receiving free and reduced lunch:

Free/Reduced	**ID**	MO	IL	OR	US
	37%	34%	31%	33%	39%

Classrooms and the Curriculum

It appears instructional time follows a Yerkes-Dodson curve, with too much and too little instruction causing a negative effect on scores. However, the TIMSS 1999 data does not support this conclusion. There is not enough evidence available to determine if too much or too little instruction causes a lowering of scores, or if this is an artifact of an undetermined variable. The same may be said for class size and interruptions. The TIMSS 1999 data does not include enough data to appropriately determine the causation of these unusual results.

On the other hand, there is evidence that appropriate use of computers and experiments in the classroom will help students score higher. There is a positive correlation between the use of experiments in the classroom and scores on the TIMSS 1999. Note, however, that inappropriate, forced, or continuous use of computers has a detrimental effect, as does not using this tool at all.

Homework and attendance in science class also seems to be important tools for raising student scores in Idaho. TIMSS 1999 did not include an indication of the amount of homework assigned. However, the students of teachers who emphasize the importance of homework tend to score higher than students whose teachers do not emphasize homework. Attendance also has a positive impact on test scores.

Science Instructional Time

Average score and percent of students by the average number of hours of science taught per week:

	ID		MO		IL		OR		US	
Hours	**%**	**Score**	%	Score	%	Score	%	Score	%	Score
>5	**19**	**515**	16	504	9	478	10	524	13	490
3.5-5	**60**	**529**	71	534	51	538	61	546	61	523
2-3.5	**10**	**543**	7	508	29	511	24	542	16	533
<2	**11**	**536**	5	508	10	564	5	482	11	521

Class Size

Average score and percent of students by science class size:

	ID		MO		IL		OR		US	
Class Size	**%**	**Score**	%	Score	%	Score	%	Score	%	Score
1-20	**25**	**524**	31	508	15	531	17	526	15	530
21-35	**74**	**529**	65	533	82	525	81	547	80	522
>35	**1**	**–**	4	555	3	432	1	–	5	493

Attendance

Average scores and percent of students whose school reports low, medium, and high attendance in science class (based on number of tardies, absences, and skips):

	ID		MO		IL		OR		US	
Attendance	**%**	**Score**	%	Score	%	Score	%	Score	%	Score
High	**14**	**537**	10	553	22	534	4	500	19	553
Medium	**78**	**528**	80	527	73	521	84	537	68	512
Low	**8**	**510**	10	451	5	555	12	521	13	480

Interruptions

Average score and percent of students by frequency of interruptions of science study (telephone calls, announcements, administrative visits, etc.)

	ID		MO		IL		OR		US	
Interruptions	**%**	**Score**	%	Score	%	Score	%	Score	%	Score
Never	**13**	**520**	13	523	19	530	13	532	13	519
Infrequent	**59**	**542**	54	541	56	537	57	554	57	539
Often	**17**	**517**	20	508	16	488	19	530	18	501
Frequent	**12**	**490**	13	482	9	482	11	505	11	470

Experiment Use

Average score and percent of students conducting experiments in science classes:

	ID		MO		IL		OR		US	
Experiments	**%**	**Score**	%	Score	%	Score	%	Score	%	Score
High	**34**	**534**	31	536	34	542	49	557	31	531
Medium	**65**	**528**	62	524	61	520	50	533	64	523
Low	**1**	**–**	7	526	4	533	2	–	4	529

Computer Use

Average score and percent of students using computers in science classes the indicated amount. *This data was not reported for science students.*

Computer	**ID**		MO		IL		OR		US	
Use	**%**	**Score**	%	Score	%	Score	%	Score	%	Score
Always	**–**	**–**	–	–	–	–	–	–	–	–
Occasionally	**–**	**–**	–	–	–	–	–	–	–	–
Never	**–**	**–**	–	–	–	–	–	–	–	–

Homework Emphasis

Average score and percent of students of teachers reporting low, medium, and high emphasis on science homework:

Amount of	**ID**		MO		IL		OR		US	
Homework	**%**	**Score**	%	Score	%	Score	%	Score	%	Score
High	**7**	**531**	11	534	13	499	17	548	15	507
Medium	**69**	**526**	76	519	74	521	68	534	77	517
Low	**24**	**527**	14	538	12	549	14	538	8	505

The Teachers

The TIMSS 1999 identifies a low number of young teachers entering the teaching profession in science. It has been reported in other studies that many of the math and science graduates of Idaho's post-secondary teacher education programs are recruited and hired out-of-state. The data reported in the TIMSS 1999 seem to support that conclusion, especially when compared to other states (except Oregon) and nationwide.

Other characteristics of Idaho's science teachers, major areas of study, confidence in their ability to teach science, and professional development, appear to be similar to that of teachers in other states and nationwide.

Age of Teachers

Percent of students taught by teachers in indicated age brackets:

Teacher Age	**ID**	MO	IL	OR	US
<30	**9%**	28%	15%	5%	20%
30-39	**14%**	21%	29%	25%	19%
40-49	**44%**	31%	29%	50%	29%
>50	**33%**	21%	28%	20%	32%

Teachers' Major Area of Study

Percent of students taught by teachers graduating in indicated major area of study. Teachers who responded that they majored in more than one area are reflected in all categories (state totals will equal more than 100%):

Major	**ID**	MO	IL	OR	US
Biology	**42%**	56%	44%	51%	47%
Physics	**8%**	14%	6%	14%	13%
Chemistry	**18%**	24%	11%	28%	21%
Science Ed	**50%**	72%	46%	74%	43%
Mathematics	**7%**	11%	12%	13%	14%
Education	**68%**	72%	65%	58%	56%
Other	**58%**	56%	54%	46%	45%

Science Teacher Confidence

Average scores and percent of students taught by teachers indicating a specific level of confidence in science teaching ability:

	ID		MO		IL		OR		US	
Confidence	**%**	**Score**	%	Score	%	Score	%	Score	%	Score
High	**21**	**521**	23	531	28	538	35	541	27	526
Medium	**53**	**533**	57	519	54	524	44	529	55	519
Low	**27**	**522**	20	527	18	509	21	545	18	511

Professional Development Focus

Percent of students whose teachers report that professional development is focused on indicated science content areas (teachers report multiple content areas as applicable):

Content Area	**ID**	MO	IL	OR	US
Earth	**44%**	53%	46%	60%	52%
Biology	**27%**	36%	39%	37%	42%
Chemistry	**38%**	33%	46%	38%	39%
Physics	**44%**	31%	33%	34%	41%
Environment	**38%**	52%	50%	36%	47%
Inquiry	**49%**	68%	50%	74%	60%

The Students

There appears to be a direct positive correlation between educational resources and computer use in the home and student scores on the TIMSS 1999 science test, as reported in other studies. The TIMSS 1999 also confirms studies that show that study outside of class improves test scores with study time of more than one hour per day greatly improved test scores. Idaho students report studying for all subjects about 2 hours per day.

It is also interesting to note how students spend their daily out-of-class leisure hours. Reports from Idaho students parallels that of students in other states and nationwide. Of particular interest is the report that reading occupies less than 45 minutes per day, and that music lessons and practice did not make the list.

Home Resources

Average scores and percent of students with varying levels of educational resources at home:

	ID		MO		IL		OR		US	
Resources	**%**	**Score**	%	Score	%	Score	%	Score	%	Score
High	**21**	**566**	17	567	22	577	28	586	22	573
Medium	**74**	**523**	79	517	74	509	68	523	73	506
Low	**5**	**423**	4	453	4	438	3	413	4	420

Home Computers

Average scores and percent of students with computers in their homes:

	ID		MO		IL		OR		US	
Computers	**%**	**Score**	%	Score	%	Score	%	Score	%	Score
Yes	**82**	**537**	76	535	80	533	86	547	80	531
No	**18**	**481**	24	486	20	470	14	474	20	464

Out-of-school Study Time

Average scores for students studying the indicated time on a daily basis

	ID		MO		IL		OR		US	
Study Hours	**%**	**Score**	%	Score	%	Score	%	Score	%	Score
>3 hours	**17**	**527**	18	516	25	509	19	548	22	520
1-3 hours	**55**	**536**	54	533	58	530	55	545	56	531
<1 hour	**28**	**514**	28	514	17	517	25	522	23	492

Average Study Time

Average number of hours students spend studying per day by subject area:

Subject	**ID**	MO	IL	OR	US
Science	**0.6**	0.5	0.6	0.5	0.6
Mathematics	**0.7**	0.7	0.8	0.8	0.8
All Others	**0.8**	0.8	1.0	0.9	0.9
Total Hours	**1.9**	1.9	2.2	2.0	2.1

Average Leisure Time

Average number of hours students spend per day by activity:

Activity	**ID**	MO	IL	OR	US
Television	**2.1**	2.6	2.6	2.0	2.5
Computer	**0.8**	0.9	0.9	0.8	0.9
Friends	**2.2**	2.7	2.5	2.3	2.4
Home Chores	**1.2**	1.3	1.1	1.1	1.1
Sports	**2.0**	1.9	1.9	2.0	1.9
Reading	**0.7**	0.5	0.7	0.7	0.6